

ABSTRACT OF THE DISCLOSURE

To improve the performance of DSL modems, a DSL duplexing ratio for a new communication is selected according to the communications needs of an application.

5 A required upstream and downstream bit rate for application communications is determined. From the ratio of these bit rates, a desired duplexing ratio is calculated. The operation of the modem is then adapted to choose a duplexing ratio that approximates the desired duplexing
10 ratio for the application. To optimize modem operation, the size and position of the upstream and downstream bandwidths used for transmission are intelligently selected when the bit rate necessary for making the transmission is less than the total available bandwidth provided by the
15 chosen duplexing ratio. By intelligently selecting a minimum number of subcarriers for Digital Multi-tone (DMT) signal transmission, a reduction in line driver power consumption is effectuated. Additionally, by intelligently selecting the position of the used bandwidth within the
20 total available bandwidth, near-end crosstalk (NEXT) noise may be minimized.